FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF ENVIRONMENTAL TECHNOLOGY
DEPARTMENT OF QUANTITY SURVEYING

SECOND SEMESTER EXAMINATION 2018/2019 SESSION

COURSE CODE: *QTS 522* **COURSE TITLE:** *CIVIL ENGINEERING MEASUREMENT II*
TIME ALLOWED: 2 Hours, 30 Minutes **CREDIT LOAD:** 2 Units
INSTRUCTION: Answer Four Questions Only. *BESMM4 & CESMM3 ARE ALLOWED*

QUESTION ONE (20 marks)

Take off quantities for the proposed **Diaphragm wall** basement in the attached drawing number (DWG/QS/01).

Brief Specification

1. Original surface & commencing surface are explaining in the attached drawing
2. Reinforcement bar are omitted in attached sketch.
3. The length and width of the diaphragm wall are 80.00m and 50.00m respectively.
4. The thickness of formwork is 100mm (0.10m)
5. Number of anchors in clay 2
6. Number of anchors in gravel 2
7. The thickness of wall is 750mm = 0.75m
8. The height of the wall both in the clay and gravel are 16.00m and 3.00m respectively.
9. Length of the anchors = 15.00m
10. Anchors working load = 20t
11. Chase size is 100x200mm

QUESTION TWO (20 marks)

Briefly describe cofferdam and caisson in civil engineering construction.
Enumerate the functions of both cofferdam and caisson in civil engineering construction
List the commonest type of both cofferdam and caisson

QUESTION THREE (20 marks)

A contract was awarded to QS Dept. FUTMX for the construction of **steel sheet pile**, and you have been commissioned by the HOD to take off quantities for the proposed steel sheet piling in the attached drawing number (DWG/QS/02)

Brief Specification

1. The steel sheet piling is primarily concerned with work affected by the water
2. Steel sheet piling is overleaf with perimeter of 90m and 15m respectively
3. There are no ancillaries
4. The number of existing steel sheet pile is 2
5. The width of the area of pile driven is 1.5m
6. The corner, junction, closure and taper piles are classified as special piles and measured as linear items
7. The driven area is measured separately from the total area of pile computed

QUESTION FOUR (20 marks)

The Niger State Government proposed the extension of **water main** to the new development areas at Gidan Mangoro and Gidan Kwano to reduce the hardship of water supply. Therefore, the Niger State Government have commissioned you as a Quantity Surveyor to take off quantities for the proposed project in the attached drawing number (DWG/QS/03)

Brief Specification

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1. The water main is to be laid below grass verges throughout its entire length. The verges have already been excavated to formation level and the main is to be laid with 750mm of cover
2. 250mm nominal bore caulked lead joint with depth not existing 1.5m
3. Taper: Nom bore 150-250mm and 100-150mm at location A & F
4. Junctions & branches: 250 x250 x250mm at location A & F and 250x250x63mm
5. Flanged: spigot nom bore 250mm and 100mm at location (A, F & G)
6. Plug and Cap: nom bore 100mm at location A & F
7. Cast Iron gate: 100mmm at location A & F and 250mm at location A, F & G
8. Cast Iron air valve: 250mm nom bore at location
9. Cast iron hydrant: 63mm with flange

QUESTION FIVE (20 marks)

The Government of Niger State proposed the construction of **SEWER** at Suleja Township. You have been commissioned as a professional Quantity Surveyor to take off quantities for the proposed project in the attached drawing number (DWG/QS/04)

Brief Specification

The details description is in sewer schedule attached

QUESTION SIX (20 marks)

Take off quantities for the proposed **Hybrid piles** in the attached drawing number (DWG/QS/05)

Brief Specification

1. 64 number of identical part bored, part driven cast in place concrete
2. Average length driven 12.50m
3. 6 numbers of 20mm diameter reinforcement bar
4. 63 numbers of 10mm stirrups with length 1.10m
5. Cutting off length is 750mm (0.75M).

Good luck
QS.DR.A.M KASIMU